ABSTRACT:

Full strength grouted sleeve connectors ensure the integrity of connected precast concrete components. This research investigated the behaviour and the strength performance of the proposed A, B, C and D-series grouted sleeve connectors for joining precast concrete components. The connectors were subjected to increasing tensile loads untill failure. The performances of the connectors were also evaluated in terms of stiffness, yield strength, ductility and failures modes. The experimental results show that the C-series grouted splice sleeve connectors succesfully achieved the full tensile strength of the connected steel bars. In addtion, the confinement provided by the steel sleeve controls and delays the splitting cracks of the surrounding grout and eventually enhances the bond between bar-and-grout significantly. The enhanced bond contributes to a shorter development length of the connected bar as compared to the conventional bar lapping method